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time the altitude of the central peaks, and the consequent coldness around their bases (snow falling on them as late as the middle of May some years), prevent the growth of the more southern group of trees and plants, which might find the moisture sufficient, above one thousand feet.

This is shown by the fact that in two isolated localities not far from this range, but in the low country, are small groves of trees probably belonging properly to the Sylva of the warmer high mountains of lower California. One of these is *Pinus Torreyana*, growing scantily on the sandstone bluffs near the mouth of Soledad creek, nine miles north of S. Diego Bay, and three hundred and fifty feet above the sea. The other is *Quercus oblongifolia*, found near the head of San Luis Rey river, sixteen miles north of Santa Isabel valley, and about one hundred and fifty feet altitude.* Besides these we miss on this range many northern trees found on the San Bernardino Range (eleven thousand six hundred feet high, by Mr. Goodyear's measurement). Of these I have noted the far-spread red fir (*Tsuga Douglasii*) and walnut (*Juglans rupestris* Englm.). The nut pine (*P. monophyllus* Torr.), and juniper (*J. occidentalis* Nutt.), of the great arid basin east of the mountains, very probably grow scantily lower down the eastern slope of this range.

SCIENCE IN THE UNITED STATES.

FROM THE FRENCH OF ALPHONSE DE CANDOLLE.

[THE following extract is taken from a recent publication, entitled "Histoire des Sciences et des Savants depuis deux siècles" — a very curious and instructive work, in which the lists of foreign associates and correspondents of the three leading scientific academies (those of Paris, London and Berlin) have been scrutinized with elaborate care and subjected to a most searching analysis. The passage which we have translated is a section upon the United States, contained in a detailed "examination of different countries viewed with regard to the causes of their influence on the sciences." It is difficult fully to appreciate the argument which runs through this extract, without presenting such an analysis of the whole work as would occupy too much space. We commend the entire volume to the careful study of the readers of the NATURALIST, as an admirable example of a scientific essay. — S. H. SCUDDER.]

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* I am inclined to believe this to be only a very luxuriant growth of *Q. crassipocula*, but have not seen the acorns.

The two foreign associates of the French Academy, and the majority of the American correspondents of this Academy and of the two other bodies above mentioned,* belong to the New England states. Consequently, calculations based on the Union taken as a whole do not give correct ideas, and, to appreciate the influences at work, we must distinguish between the six northeastern states and the rest of the country.

The most brilliant epoch for New England was that of Franklin and Rumford. The population of this part of the United States was at that time only half a million, and in consequence of its origin it presented very favorable conditions.

The only unfavorable conditions were our Nos. 1, 2, 7 and 18.† None of these are very important or very characteristic. We thus understand why New England has made the same progress in science as the most civilized countries of Europe. The early pilgrims resembled the protestants expelled from France and Belgium, in their ancient intellectual culture, their devotion to ideas rather than to interests, their laborious and austere life.

The rigor of the old Calvinism gave place at Boston, as at Geneva and in Scotland, to broader and more tolerant ideas. Without this a Franklin would not have been possible, and the scientific influence of Harvard University can scarcely be otherwise explained. If, to-day, anything would seem to threaten this select population of New England, it is the incessant emigration of its youth to other parts of America and the immigration of foreigners for the most part very different from the early settlers. Perhaps also the characteristic activity of Americans is an obstacle to the cultivation of the sciences, even in the New England states. Taking the Union as a whole, the principal difficulty evidently lies here. The young men abandon their studies early in life. They change their residence and profession again and again, hoping for greater and more speedy gains. *Savants* whose learning does not extend to trade stand strangely alone in a society thus devoted to the production of all mercantile commodities. The inventive genius of Americans also gives the preference to applications which do not strictly belong to science. I need only repeat here what a very distinguished American *savant* said recently at the opening of a session of the scientific association of the United States.* Moreover, to be just, and to reply to certain European notions founded on a superficial knowledge of the people of the United States, it will be well to add one remark. It is not through greed of gain and of material pleasure that the Americans throw themselves with such ardor into lucrative pursuits. They are quite capable of sacrificing their interests to ideas, as we have seen in their great civil war. It was surely for the interest of both parties that they should then, by means of mutual concessions, continue to live in peace; but the south held to the original sovereignty of each state, the north to the present and future aggrandizement of the United States, and a portion of the people aimed at the abolition of slavery. They sacrificed everything to sentiments and ideas. When a few hundred men can be found among the Americans, as zealous for the advancement of science as their volunteers were for political opinions, they will make marvellous progress. It is not activity nor intelligence which they lack: it is the will to apply themselves to that which brings in no return, and which is not in sympathy with the popular taste.

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* The Royal Society of London and the Academy of Sciences of Berlin.

† These are given on a previous page, as follows:

1. Small proportion of persons belonging to the rich classes, as compared with those who are obliged to work for their living and especially to labor with their hands.

2. Small proportion among the richer classes of those who are contented with their income and whose property requires but little attention, so that they are inclined to devote themselves to intellectual pursuits by no means lucrative.

7. Insufficient and poorly organized material for various scientific work, such as libraries, observatories, laboratories and museums.

18. Distance from civilized countries.

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* "True, it has already given to the world many a master work, in the arts of peace and the arts of war; the steamboat, the cotton gin and the sewing machine; the practical application of the electric telegraph, and the means of its printed record; the most perfect form yet attained for the steam engine and the steam boiler; the most powerful ordnance and the most impregnable vessels; the telescopes of Clark and Fitz, the microscopes of Spencer and Tolles, and the means of annihilating pain. . . . . But what I would now say is, that, whatever may be the claims of our country to have done her part in the furtherance of civilization so far as depends upon the solution of high political problems and upon advancement in the arts, her contributions to science have not kept pace with these; nor, indeed, with those of several European nations which have had to contend against obstacles quite comparable in magnitude with our own, even though of a totally different nature." Address of ex-president B. A. Gould in 1869. [This extract is from the original. DeCandolle quotes from an incomplete translation which appeared in the Gazette Médicale de Paris, May 20, 1871. The address was delivered in 1869, not in 1870, as stated by DeCandolle.]

It would seem also that in this young nation (excepting New England) the people are of a very speculative turn of mind. Poets of both sexes are numerous. Religious sects sometimes give evidence of a great power of imagination. The most eccentric, that of the Mormons, strove to reëstablish a well known institution, polygamy, but it has also invented the theory of spiritual wives, which, by its purity, its grace and its novelty, really deserves a prize of poesy. Spiritualism has found more favor in the United States than in Europe. Now to reach a brilliant scientific epoch, we must have a public eager for abstract truth, for things which may be demonstrated by perfectly sure processes, and, I should add, things of little or no practical use.

Precedents, traditions, so advantageous to free scientific labor, are wholly wanting among most of those who emigrate to the United States. The selection of this population is brought about by a desire for lucrative employment, and the result is in perfect accordance with the theory. It would be quite different, if, for example, wars and revolutions were gradually undermining civilization in Europe, and if thousands of families who had followed liberal professions for one or two centuries, hoped to find more security in America. We should then see, on a large scale, what took place for the benefit of New England, of Switzerland, of Holland and of Prussia, at the time of the old persecutions of French and Belgian protestants. America would have inherited the secular culture of sciences in Europe. In the absence of similar circumstances, the extension of inherited fortunes, of instruction, and of the isolation, already apparent, of many enlightened men in the midst of democratic tumult, must gradually develop, among a certain class of the American people, a taste for disinterested and purely scientific research.

Distance from the old civilized countries has long been injurious to the labors and the reputation of American *savants*. In proof of this, we may notice that the only citizens of the United States called to the high distinction of the title of Associate of the French Academy of Science, Franklin and Thompson, Count Rumford, had resided in Europe, the first in a conspicuous position, the other for a long period of years.* Otherwise, it is very possible that less attention would have been paid to their labors. In our day, communication has become more ready. Many young Americans study in Europe. Others come to travel after publishing memoirs. Their scientific zeal is thus increased, and the European *savants* become better acquainted with them. Finally, the Anglo-American language is destined, by the force of circumstances, to predominate. In every way, therefore, one may expect a larger development of the sciences in the United States—it is true in a somewhat distant future, for favorable influences make themselves felt only after one or two generations.

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* DeCandolle's tables end with 1870. Since then the late Professor Agassiz was elected a Foreign Associate, though DeCandolle would have probably classed him with Swiss scientists, as not having been born and educated in America.—EDS.

BOTANICAL OBSERVATIONS IN WESTERN WYOMING.

BY DR. C. C. PARRY.

No. 2.

Wind River, which in pursuing a general southeast course drains the entire eastern slope of the Wind River range, also receives from the east and north the drainage of an extensive mountain district, to which, as a whole, no distinctive name has yet been applied. To the most southeastern extension of this mountain system the name of Owl Creek range has been locally applied. At the lowest point, where this merges into the open and elevated plains, the main stream, turning sharply to the north, loses the name of Wind River to assume that of the Big Horn, tributary to the Lower Yellowstone. Thus it happens that the same stream, under another name, in doubling on its upper course from southeast to north, receives lower down the eastern drainage of the Owl Creek range, and the broken mountain district to the northwest, through the little known Big Horn tributaries of Owl Creek, Gray Bull and Stinking Water.

Our route, instead of following down the main valley, crossed Wind River some distance above the sharp bend above referred to, thence crossing a low spur of the Owl Creek range, and skirting near the base of the high mountains to the west, passed Owl Creek, Gray Bull and several southern tributaries of Stinking Water, to ascend a main branch of the latter stream to its source